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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,604	03/28/2005	Edwin Nun	258011US0X PCT	4900
22850	7590	06/25/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
CHAU, LINDA N				
ART UNIT		PAPER NUMBER		
4162				
NOTIFICATION DATE		DELIVERY MODE		
06/25/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary**Application No.**

10/506,604

Applicant(s)

NUN ET AL.

Examiner

LINDA CHAU

Art Unit

4162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 9/10/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/IS/D)
Paper No(s)/Mail Date See Continuation Sheet
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/28/06, 2/21/06, 3/9/05, 12/7/04, 9/10/04

DETAILED ACTION

Priority

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application must be submitted in reply to this action. 37 CFR 41.154(b) and 41.202(e).

Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hüffer et al. (US 6,783,807; WO 01/73162).

Regarding claim 1, Hüffer teaches an article comprising at least one surface having self-cleaning properties (Col. 3, Lines 53-55, Col. 4, Lines 20-22, Col. 6, Lines 1-7, and Col. 9, Lines 57-61) and surface structures with elevations (Col. 3, Lines 65-66). Hüffer teaches that spherical particles are particularly preferably used because the use of spherical particles leads to very homogeneous composite layers, thus the microparticles are more likely to be anchored (Col. 5, Lines 24-27). Regarding the limitation “injection”, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product

in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113)

Regarding claims 2 and 3, Hüfner teaches an article wherein the elevations have an average height and average separation, which overlaps the ranges claimed by the applicants (Col. 3, Lines 65-66).

Regarding claims 6 and 7, Hüfner teaches an article wherein the molding comprises microparticles and the microparticles are selected from the group claimed by the applicants (Col. 4, Lines 6-12).

Regarding claim 8, Hüfner teaches that the microparticles can have hydrophobic properties (Col. 6, Lines 1-2)

Regarding claim 9, Hüfner teaches that perfluoro-alkoxy polymers are preferred as the article material (Col. 5, Lines 14-19)

Regarding claim 11, Hüfner teaches that the particles have a mean diameter of from 1 to 50 μm , which is within the range claim by the applicants (Col. 6, Lines 23-24).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hüffer et al. (US 6,783,807) in view of Baumann et al. (US 6,872,441) and in further view of Baumann et al. (US 6,800,354).

Regarding claims 4 and 5, Hüffer fails to disclose any information about the aspect ratio of the particles. However, Baumann teaches a micro rough surface structure with a ratio of average profile height to average distance between adjacent profile peaks in the range from 0.3 to 10 (Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hüffer's article with the teachings of Baumann, since it will enhance the self-cleaning surface. Furthermore, Baumann teaches that the particles are nanoscale size to form a nano-rough surface (Abstract). It would have been obvious to one of ordinary skill in the

art at the time of the invention to modify Baumann's ('441) microparticles to the teachings of Baumann's ('354) nanostructured microparticles, since Baumann ('354) teaches that having a nano-rough surface causes a hydrophobic effect, which thus enhances the self-cleaning surface.

Claims 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hüffer et al. (US 6,783,807) in view of Baumann et al. (US 6,800,354).

Regarding claim 10, Hüffer teaches the product discussed above, however, fails to mention that the particles are anchored from 10 to 90% of their average particle diameter within the surface of the product. On the other hand, Hüffer teaches that the inorganic particles are deposited on the surface to be coated in such a way they form protuberance of from 100 nm to 50 μm and that the protuberances have a mean spacing of from 100 nm to 100 μm (Col. 6, Lines 28-32). It would have been obvious to one of ordinary skill in the art at the time of the invention that the particle would obviously be anchored by at least 10% of the particle diameter for the purpose of providing a self-cleaning article. Furthermore, Baumann teaches self-cleaning particles on a substrate with a height of 0.5 to 15 μm (Col. 5, Lines 13-17), which are embedded, thus anchored (Col. 4, Lines 23-27), forming a layer with thickness of 5-1,000 nm (Col. 8, Lines 29-39), which would obviously be anchored by at least 10% of the particle diameter for the purpose of providing a self-cleaning article (Col. 2, Lines 66-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hüffer's structure with a self-cleaning surface wherein the particles are embedded by at least 10% and not more than 90% of their diameter as taught by Baumann, in order to provide an article with a self-cleaning surface.

Claims 12, 14-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hüffer et al. (US 6,783,807) in view of Keller et al. (Pub. No.: US 2002/0016433).

Regarding claim 12, Keller teaches a production of shaped articles from injection molding [0076] where the hydrophobic powder particles are fix on the surface of the substrate to be coated or to produced a shaped article [0024], which the powder particles are later pressed into the surface of the injection molding with a pressure of 7.4×10^7 Pa [0131]. It would have been obvious to one of ordinary skill in the art at the time of the invention to produce Hüffer's article in such a way taught by Keller because the articles taught by Hüffer can be made via injection molding by Keller's compressed step.

Regarding claim 14, Hüffer teaches that perfluoro-alkoxy polymers are preferred as the molding material (Col. 5, Lines 14-19). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Hüffer's polymer to the process taught by Keller to enhance a self-cleaning surface.

Regarding claim 15, Hüffer teaches that his articles can be used in a lot of facilities (Col. 8, Lines 41-68 – Col. 9, Lines 1-53). Although Hüffer doesn't explicitly state that his articles are used for conventional injection moldings, it would have been obvious to one of ordinary skill in the art at the time of the invention that his articles are needed in the production of conventional injection moldings, since his article is so versatile in the facilities described by Hüffer.

Regarding claim 16, Keller teaches that the composition can be applied by aerosol, which is a type of spraying [0068].

Regarding claims 17 and 22, Hüffer teaches a suspension comprising of hydrophobic particles and a solvent, which the solvent is evaporated. (Col 5. Lines 28-42 and Col. 6. Lines 1-4).

Regarding claims 18, Keller teaches an article produced by injection molding [0076] with the application of hydrophobic particles [0013], which are formulated by aerosols by propellant gases [0068]. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Keller's process to produce Hüffer's articles, since it would easily coat the article by spray to obtain a self-cleaning surface.

Regarding claim 19, Keller fails to teach that the injection-molding process is carried out using a pressure greater than 40 bar. However, Keller teaches that the solids content of the sprays ranges from 0.1 to 10% by weight [0068]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the injection-molding process be carried out using a pressure at least greater than 40 bar in order to carry out the 10% of the solid's weight.

Regarding claim 20, Hüffer teaches that the particles have a mean diameter of from 1 to 50 μm , which is within the range claim by the applicants (Col. 6, Lines 23-24).

Regarding claim 21, Hüffer teaches a molding wherein the molding comprises microparticles and the microparticles are selected from the group claimed by the applicants (Col. 4, Lines 6-12).

Regarding claims 23 and 24, Hüffer teaches that the particles have hydrophobic properties by virtue of treatment before coating (Col. 6, Lines 1-20).

Regarding claim 25, Hüffer teaches an article comprising at least one surface having self-cleaning properties (Col. 3, Lines 53-55, Col. 4, Lines 20-22, Col. 6, Lines 1-7, and Col. 9, Lines

57-61) and surface structures with elevations (Col. 3, Lines 65-66). It would have been obvious to use Hüffer's article be produced by Keller's process to produce a self-cleaning surface.

Regarding claim 26, Keller teaches the invention suitable for protection against weathering or components which come into contact with liquid [0087]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use Keller's method for Hüffer's article, since Keller teaches that it is optimal to use her process for housing parts.

Claim 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hüffer et al. (US 6,783,807) in view of Keller et al. (Pub. No.: US 2002/0016433), and in further view of Baumann et al. (US 6,800,354).

Regarding claim 13, Hüffer and Keller teaches the product and process discussed above, however, fails to mention that the particles are anchored from 10 to 90% of their average particle diameter within the surface of the product. On the other hand, Hüffer teaches that the inorganic particles are deposited on the surface to be coated in such a way they form protuberance of from 100 nm to 50 μ m and that the protuberances have a mean spacing of from 100 nm to 100 μ m (Col. 6, Lines 28-32). It would have been obvious to one of ordinary skill in the art at the time of the invention that the particle would obviously be anchored by at least 10% of the particle diameter for the purpose of providing a self-cleaning article. Furthermore, Baumann teaches self-cleaning particles on a substrate with a height of 0.5 to 15 μ m (Col. 5, Lines 13-17), which are embedded, thus anchored (Col. 4, Lines 23-27), forming a layer with thickness of 5-1,000 nm (Col. 8, Lines 29-39), which would obviously be anchored by at least 10% of the particle diameter for the purpose of providing a self-cleaning article (Col. 2, Lines 66-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify

Hüffer's structure produced by Keller's method with a self-cleaning surface wherein the particles are embedded by at least 10% and not more than 90% of their diameter as taught by Baumann, in order to provide an article with a self-cleaning surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA CHAU whose telephone number is (571)270-5835. The examiner can normally be reached on Monday-Thursday, 12:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNC

/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 4162